

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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OFFICE OF THE SECRETARY

In the Matter of

Inquiry Concerning Deployment of)
Advanced Telecommunications)
Capability to All Americans in a Reasonable)
And Timely Fashion, and Possible Steps)
To Accelerate Such Deployment Pursuant)
To Section 706 of the Telecommunications)
Act of 1996)

CC Docket No. 98-146

COMMENT BY ALCATEL USA, INC.

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SUMMARY

Alcatel USA, Inc. ("Alcatel") develops technologies and manufactures equipment that makes the Internet and other broadband services work. Its wide array of telecommunications switching, transport and access systems make up the backbone and "last mile" broadband infrastructure. With this expertise, Alcatel is well positioned to comment on the captioned Notice of Inquiry regarding deployment of advanced services to "all Americans."

As detailed herein, Alcatel urges the Commission to consider the following initiatives so it can succeed in fulfilling the mandate under Section 706 of the Telecommunications Act of 1996 to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans."

- Permit market forces to drive development and deployment of advanced telecommunications services.
- Expedite processing of applications proposing to deploy advanced telecommunications services to rural and other deserving areas, such as the now 3-year long pending request by SkyBridge, L.L.P. to establish a new broadband non-geostationary orbit fixed-satellite service.
- Focus regulatory efforts on issues that matter, such as optimizing widespread deployment of broadband and other technologies, instead of spending time determining what bit rate qualifies as an "advanced telecommunications capability," as the Commission did in its first Section 706 proceeding
- Facilitate introduction of technologies that bring the "last mile" to all Americans, such as Alcatel's market-leading DSL systems.
- Exploit wireless technologies, such as LMDS, to upgrade and expand backbone infrastructure.

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INTRODUCTION

Alcatel USA, Inc. ("Alcatel") hereby submits comments in response to the Federal Communications Commission's (the "Commission's") Notice of Inquiry ("NOI") in the above captioned matter. This NOI begins the Commission's second inquiry into whether advanced telecommunications capability is being deployed to "*all Americans*" in a reasonable and timely fashion as mandated in Section 706 of the Telecommunications Act of 1996 (the "Act").

Alcatel develops and builds next generation networks, delivering integrated end-to-end voice and data communications solutions to established and new carriers, as well as enterprises and consumers worldwide. With 120,000 employees worldwide, including more than 12,000 in the United States, and sales of \$25 billion, Alcatel operates in more than 130 countries.

Alcatel is a leading global supplier of both wireline and wireless technologies. Its technologies are deployed in all parts of the telecommunications network, including the core ("backbone") and from the edge to the end user ("last mile"). Alcatel is committed

to the prospect that "*all Americans*" (and persons everywhere) have access to advanced telecommunications services, which hold the promise of increasing productivity, creating jobs and improving educational, social and health services for all citizens. As an international supplier of telecommunications switching, transport and access systems, Alcatel is well qualified to speak of technology issues related to advanced telecommunications. Furthermore, Alcatel has a keen understanding of the global market, its players and the regulatory landscapes they face.

As a preliminary comment, Alcatel believes that the telecommunications equipment industry has developed and continues to develop technologies that can go a long way toward providing advanced telecommunications services to "*all Americans*." Some of those technologies, specifically the access technologies, are particularly germane to this discussion. Many of them are available today for deployment; others could be ready in the near future. However, because of either market conditions or regulatory impediments, not all of this technology is being deployed on a reasonable and timely basis, especially to certain market segments such as rural customers.

Alcatel believes that, except where the absence of a competitive environment impedes development and deployment of advanced telecommunications technologies, or where the public interest is clearly negatively affected, the Commission can best accomplish the goals of Section 706 of the Act by permitting market forces to drive development and deployment of these services. The Commission should only need to act to correct existing or potential "competitive" or "regulatory" barriers to network infrastructure development, deployment and use which prevent or delay the availability of advanced telecommunications service.

Indeed, the Commission can have a constructive regulatory role to play to aid in the further deployment of these technologies. For example, the Commission quite appropriately manages the radio frequency spectrum, a scarce resource limited by the laws of physics. However, we suggest that the Commission, in its administration of the spectrum, must not make securing spectrum allocations so difficult or time and resource consuming that it has the unintended consequence of protecting the interests of either entrenched incumbents or politically nimble new entrants. The more compelling public good of deploying additional technologies and services that will benefit more users must be the overarching consideration.

As discussed in more detail below, SkyBridge, LLP, a US company with a global mission, applied to the Commission for authorization to establish a new broadband non-geostationary orbit ("NGSO") fixed satellite service ("FSS") system in February 1997. Over three years have passed, yet the Commission has failed to grant SkyBridge its license. Much has been said about the "digital divide" and the need for solutions thereto. Yet before the term "digital divide" was ever coined, SkyBridge had concrete plans to deploy a system that specifically addresses the geographical "digital divide" problem with particular emphasis on those in rural areas who otherwise will be among the digitally disenfranchised.

SkyBridge is a unique satellite-based telecommunications system. Through an 80 Low Earth Orbit ("LEO") satellite constellation, it will provide operators with broadband capacity, enabling them to offer high-speed local access to multimedia interactive services for business and residential users anywhere in the world. SkyBridge is composed of two main subsystems: 1) the Space Segment, and 2) the Terrestrial Segment.

SkyBridge will use a constellation of 80 satellites in the Ku band, orbiting at an altitude of 913 miles (1,469 km). This low earth orbit allows the short signal propagation time - 30 milliseconds - needed for the provision of real-time interactive services. Traffic will run transparently from user terminals through satellites, i.e. without any on-board processing. Approximately 200 gateway stations are planned for worldwide coverage. Each gateway will have 234 miles radius coverage.

Gateway stations will interface with the existing terrestrial network through an ATM switch, ensuring seamless integration into these networks. Users, either business or private individuals, companies, factories, hospitals or schools will be equipped with low cost terminals. Unsurpassed flexibility will be ensured by localizing the traffic processing within the gateway, thus guaranteeing operators that the network will evolve according to market requirements.

Since the cost of infrastructure is not geographically sensitive, there is no need for artificial cross subsidization in order to achieve universal service. Whether the user is in downtown Chicago or in remote North Dakota, low cost access to advanced telecommunication services is possible.

Unlike other wireless satellite systems, which rely on so called "elliptical orbits," SkyBridge is a truly ***global system***. The elliptical orbiting systems, which have been only recently proposed, use up scarce spectrum resources in a way that discriminates against large segments of the earth's population. In addition to the technical issues raised by such a system (i.e. higher altitude, longer propagation rate is not as conducive to real time interactive services), these systems pose harm to developing countries in Africa, Asia and South America, effectively writing them off and ensuring that they cannot participate in

the emerging global information revolution.

RESPONSE TO SPECIFIC QUESTIONS RAISED IN THE NOI

What is "advanced telecommunications capability"?

In the first Section 706 Report, the Commission defined "advanced telecommunications capability" as "high-speed, switched, broadband capability that enables users to originate and receive high quality voice, data, graphics, and video telecommunications using any technology." (Report at ¶ 20) For the purpose of the Report the Commission defined broadband as having the capability of supporting, downstream and upstream, a speed in excess of 200 Kilobits per second ("Kbps") in the last mile.

We feel that these are reasonable definitions in terms of current technologies; however, to keep the definition from quickly becoming obsolete because of technological developments, the real emphasis should be on the widespread delivery of the aforementioned services and not on a bit rate. Leading-edge equipment suppliers like Alcatel will continue to find ways to deliver the bandwidth to accommodate content and services that will address consumer demand.

Alcatel knows of what it speaks on this subject since it is the world-leading supplier of xDSL technology with more than 50% share of the ADSL market worldwide. With nearly one and one half million lines shipped to service providers in North America, the Alcatel 1000™ ATM Subscriber Access Multiplexer ("ASAM") is the clear market leader in DSL and the platform of choice for incumbent local exchange carriers ("ILECs")

and competitive local exchange carriers ("CLECs") deploying DSL. The Alcatel 1000 ASAM™ supports a wide variety of service packages, including asymmetric and symmetric offerings. It is fully NEBS Level 3 compliant, and can be seamlessly collocated to provide excellent density, power utilization and heat dissipation in collocation environments. It also supports full-rate discrete multi-tone ("DMT") ADSL as well as reduced rate G.lite ADSL on the same hardware. The Alcatel 1000™ provides unique functionality in support of combined services including multiple ATM QoS per subscriber line and flexible bandwidth use when phones are inactive.

ADSL allows service providers to offer Internet access to homes and businesses over standard telephone lines at speeds of up to 8 Megabits per second ("Mbps"), or nearly 200 times faster than traditional dial-up modems. ADSL service is always on, eliminating the need for Internet dial-up and annoying busy signals. With ADSL, the most popular form of DSL, subscribers can simultaneously make telephone calls and send faxes while accessing the Internet at very high speed. To be sure, DSL technology is a key enabler of the emerging global Internet economy and unquestionably one of the principle solutions to the challenge of ubiquitous advanced telecommunications services.

Is advanced telecommunications capability being deployed to *all* Americans?

The short answer is "No."

As stated above, Alcatel believes that the telecommunications equipment industry has available and continues to develop technologies that can go a long way toward providing advanced telecommunications services to "*all Americans*" on a reasonable and timely basis. However, because of either market conditions or regulatory impediments, not all of this technology is being deployed in a reasonable and timely fashion as intended

by the Act, especially to certain segments of the market. The ever-growing concern over the "digital divide" is evidence that certain segments of the public are not getting the benefits intended by the Act.

The problem is not in the backbone of the network because significant strides have been or are being made in upgrading the speed, capacity, and reliability of that key component of the network. Alcatel has been a leading supplier of equipment for this upgrade, selling products for the network backbone, including fiber optic cable and various optical electronic equipment used in the fiber environment. Alcatel Optronics, the Alcatel unit providing optoelectronic components, markets a full range of optoelectronic devices and solutions for fiber optic communications. Operating state-of-the-art manufacturing plants, Alcatel is a leading supplier of high-performance laser and photo detector modules, optical amplifiers and other integrated optoelectronic modules with particular emphasis on components for high bit-rate and Dense Wave Division Multiplexing ("DWDM") systems. Last fall, the consultancy RHK named Alcatel the global leader in DWDM market share, counting both submarine and terrestrial long-haul optical transmission systems. Alcatel, which was the first company to introduce DWDM lasers in 1995, is also among the leading suppliers of optical systems components, with sales in the range of \$200 million in 1999. That figure is expected to grow more than 50 percent this year.

Recognizing the huge potential of the metropolitan transport market, Alcatel has also developed a new generation of low-cost, compact optical amplifiers and lasers. These will pave the way for transmission equipment costing only half as much--and taking up only one third as much space--as previous systems. The favorable economics

should greatly accelerate deployments of metro DWDM. Seeking to slash the costs of deployment and maintenance of long-haul networks, many carriers are investigating the potential of fiber that exploits the so-called Raman amplification effect, which lets signals travel without regeneration as far as 3,000 kilometers--roughly 10 times the distance of ordinary networks.

Manifestly, Alcatel fiber optic wires and electronic equipment are currently being deployed by its customers, both in the US and abroad, who have recently been investing large sums of capital to deploy new high speed backbone networks, thereby increasing global network capacity exponentially.

Unfortunately, the explosive growth in the backbone has not been matched in the so-called "last mile," the link connecting the residential and business customer to the network. As the Commission pointed out in its first Section 706 Report, "no matter how fast the backbone or network is, if the last mile to the consumer is slow, then the consumer cannot take advantage of the network's high speed capabilities." (First 706 Report ¶ 13) The last mile is critical for access to advanced telecommunications capabilities by "*all Americans*". As discussed above, Alcatel sells equipment in the network's last mile, including wireline technology like xDSL, and terrestrial wireless solutions like Local Multipoint Distribution Systems ("LMDS").

In contrast to some of the other access technologies, DSL technology sits on top of the existing copper wireline, which is already widely deployed. DSL does not require massive investments to upgrade the LEC access network and most of the costs to deploy DSL are variable rather than fixed. That is, the service provider may deploy new equipment as new subscribers come online. ILECs, like SBC Communications' advanced

services affiliate who announced its "Project Pronto" in October 1999, and CLECs like Covad use DSL technology and existing copper telephone plant to provide broadband access to residential customers.

Unlike cable, for example, DSL provides a "dedicated" line to the consumer premises, *reserving* bandwidth and *increasing* the level of security against unauthorized interception of data. On that single line, a customer can have simultaneous plain old voice telephone service ("POTS"), faxing capabilities and high speed Internet access at rates currently up to 8 Mbps. Voice over DSL is now emerging as another advanced service, as are subsequent generations of DSL, including High Speed DSL ("HDSL") and Very High Speed DSL ("VDSL"). Some of the earlier distance-from-central-office limitations of DSL technology have been addressed through the deployment of digital loop carriers ("DLCs"); other technological advances are currently being developed. Again, Alcatel is on the leading edge of providing this technology.

It is not insignificant that analysts now believe that DSL growth will outpace cable in the US over the next five years.¹

While DSL, LMDS and HFC considered together offer impressive access coverage and are immediately available, wireless satellite systems like SkyBridge, in which Alcatel is a partner, offer a potential coverage rate of 100%, with a spot beam footprint accessing virtually every house, hut, tent, igloo, building, ship, aircraft, school, public library and hospital in the world.

Is Overall deployment "reasonable and timely"?

Alcatel reiterates that it believes the telecommunications equipment industry has

¹ *Home Cable and DSL Internet Connections to Explode, March 13, 2000, available at*

developed and continues to develop technologies that can go a long way toward providing advanced telecommunications services to "*all Americans*" on a reasonable and timely basis. However, because of either market conditions or regulatory impediments, not all of this technology is being deployed, especially to certain segments of the market. The ever-widening debate over the "digital divide" is evidence that certain segments of the public are not receiving the benefits of access to advanced telecommunications services.

If deployment is not timely and reasonable, what actions will accelerate deployment?

The Commission should continue to encourage upgrades and build out of the cable HFC networks and deployment of wireline (xDSL) and wireless (fixed terrestrial) technologies by ILECs and CLECs. Whenever it becomes apparent that regulations are impeding development and deployment of these technologies, such regulations should be immediately removed.

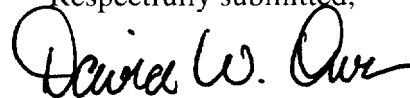
It is a basic economic tenet that as more service providers offer more options for consumers, that places downward pressure on prices and increases the likelihood of enhanced service opportunities as service providers seek to differentiate themselves. However, looking at all of the technologies being discussed, there is really only one that will be able to provide true universal access to advanced telecommunications services and that is SkyBridge. Accordingly, the FCC should immediately grant the license that SkyBridge has requested.

CONCLUSION

It was clearly the intent of Congress when it passed the Telecommunications Act

of 1996 to deregulate the telecommunications industry and open the floodgates of competition for the benefits of "*all Americans*." As a general matter, Alcatel believes firmly that market forces are more efficient than regulatory intervention in accelerating the deployment of advanced telecommunications capabilities to "*all Americans*" and by extension to all citizens of the world. However, there is a role for the modern day Commission to play. Alcatel encourages the Commission to exercise its authority where appropriate, especially in order to correct existing or potential "competitive" or "regulatory" barriers to network infrastructure development, deployment and use. One such regulatory barrier is failure of the Commission to grant SkyBridge the license it has requested. Alcatel hopes that the Commission will take immediate corrective action.

Respectfully submitted,



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